

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
4 August 2005 (04.08.2005)

PCT

(10) International Publication Number
WO 2005/069748 A2

(51) International Patent Classification: Not classified

(21) International Application Number: PCT/SE2005/000098

(22) International Filing Date: 26 January 2005 (26.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 0400177-2 26 January 2004 (26.01.2004) SE

(71) Applicant (for all designated States except US): NANOFACTORY INSTRUMENTS AB [SE/SE]; Walleriusgatan 2, S-412 58 Göteborg (SE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ENOKSSON, Peter [SE/SE]; Småtuvegatan 7, S-431 69 Mölndal (SE). NAFARI, Alexandra [SE/SE]; Eklandagatan 33, S-412 82 Göteborg (SE). OLIN, Håkan [SE/SE]; Kyrkogatan 10, S-852 31 Sundsvall (SE). ALTHOFF, Fredrik [SE/SE]; Törnrosavägen 8, S-435 31 Mölnlycke (SE). DANILOV, Andrey [RU/SE]; Nanofactory Instruments AB, Walleriusgatan 2, S-412 58 Göteborg (SE). DAHLSTRÖM, Jens [SE/SE]; Royens Gata 1, S-431 34 Mölndal (SE).

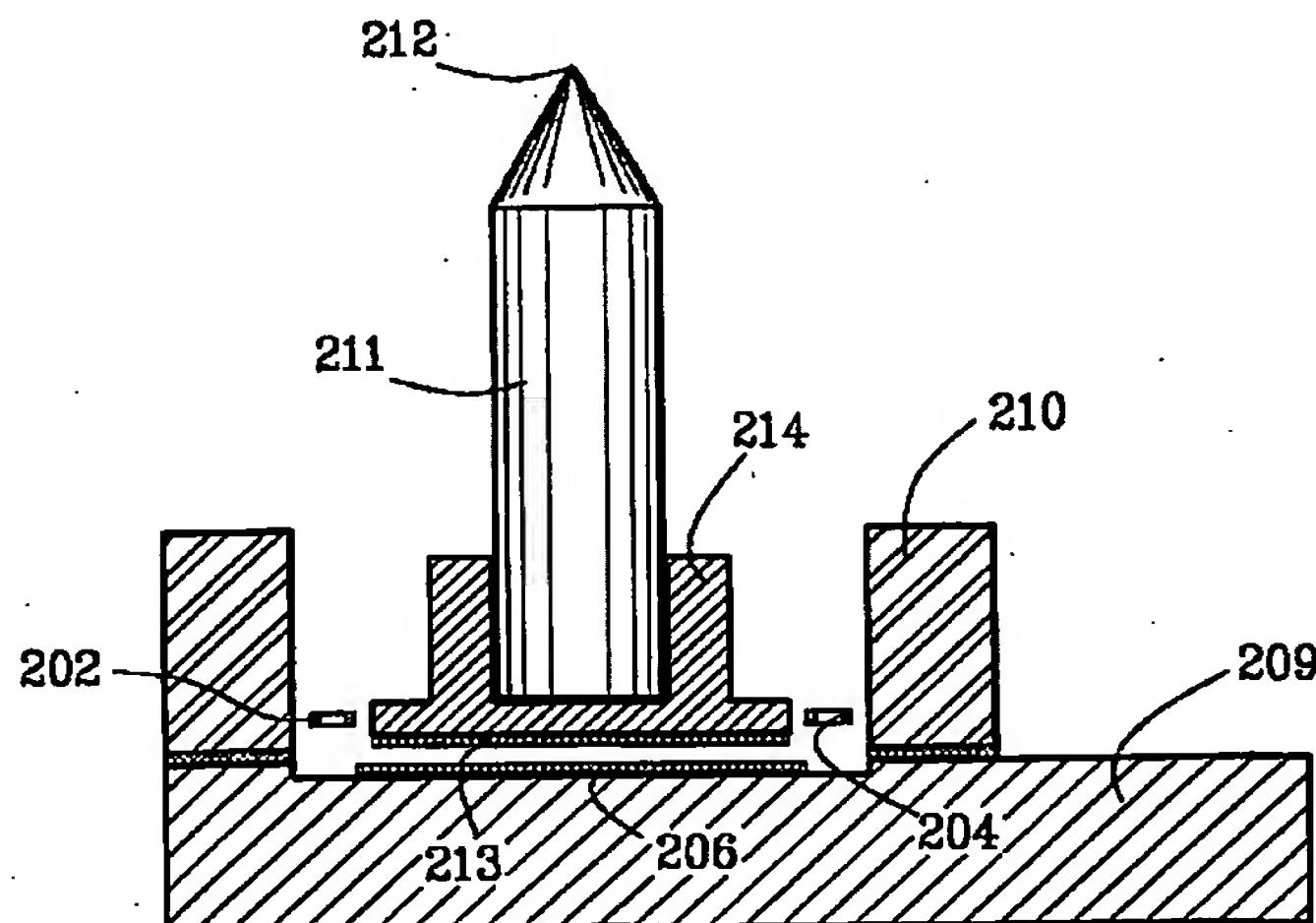
(74) Agent: VALEA AB; Lindholmspiren 5, S-417 56 Göteborg (SE).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: MEMS NANOINDENTER



WO 2005/069748 A2

(57) Abstract: A force sensor (200) and nanoindentation system (300) using such force sensor (200), wherein the force sensor (200) comprise a movable membrane (207) attached to a fixed bulk structure (210) with springs (201, 202, 203, 204) formed between the membrane (207) and bulk structure (210); the springs (201, 202, 203, 204) may be provided two on each side of a rectangular membrane (207) and each in the form of a U-shape with displacing elements (801) formed perpendicular to each open end of each U-shaped spring (800). The force sensor further comprises electrodes (206) for detecting capacitive changes between the movable membrane (207) and the electrodes (206) in order to measure a movement in relation to an applied force. The membrane (207) further comprises a probe holding structure (214) for providing a solution for interchangeable probes (211).



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *without international search report and to be republished upon receipt of that report*